

In the Claims:

Please amend Claims 1-18 and 20-22 as shown below, and add new Claims 24-28 prior to calculating the fees due for this patent application. A complete copy of the claims including marked-up versions of each claim which is amended in this Preliminary Amendment appears below.

- 1 1. (Currently Amended) A laser multiplexing apparatus comprising a compound lens
2 comprising at least two focusing elements arranged to focus at least two respective laser
3 beams to a focal point on a common workpiece.
- 1 2. (Currently Amended) An element as ~~claimed in claim 1~~ defined in Claim 1, in
2 which the compound lens comprises an array of lenses.
- 1 3. (Currently Amended) A laser including an element as ~~claimed in claim 1 or claim~~
2 ~~2~~ defined in Claim 1.
- 1 4. (Currently Amended) A method of multiplexing laser beams comprising
2 temporally interleaving at least two pulsed laser beams such that said beams are
3 multiplexed independent of their state of ~~polarisation~~ polarization.

1 5. (Currently Amended) A method as ~~claimed in claim 4~~ defined in Claim 4, in
2 which at least two laser beams are spatially separated and in which a variable deviation
3 element focuses the laser beams onto a common target area on a workpiece.

1 6. (Currently Amended) A method as ~~claimed in claim 4 or claim 5~~ defined in Claim
2 4, in which the variable deviation element is moveable so as to focus the temporally
3 interleaved beams onto the common target area on a workpiece.

1 7. (Currently Amended) A method of multiplexing laser beams comprising the ~~steps~~
2 steps, in any order, ~~of~~ of:
3 spatially multiplexing laser pulses onto a common ~~workpiece~~ workpiece; and
4 temporally interleaving at ~~least~~, least some of the spatially multiplexed pulses.

1 8. (Currently Amended) A method as ~~claimed in claim 7~~ defined in Claim 7, further
2 comprising ~~temporally~~ temporally overlapping at least some of the pulses.

1 9. (Currently Amended) A laser multiplexing apparatus ~~comprising~~ comprising:
2 at least two pulsed laser sources for generating pulsed laser ~~beams~~ beams; and
3 a temporal multiplexing element arranged to temporally interleave at least two
4 pulsed laser beams.

1 10. (Currently Amended) An apparatus as ~~elaimed in claim 9~~ defined in Claim 9, in
2 which the temporal multiplexing element comprises a variable deviation element.

1 11. (Currently Amended) An apparatus as ~~elaimed in claim 10~~ defined in Claim 10, in
2 which the variable deviation element comprises a moveable reflector or wedge.

1 12. (Currently Amended) An apparatus as ~~elaimed in claim 10~~ defined in Claim 10, in
2 which the variable deviation element comprises a moveable refractor.

1 13. (Currently Amended) An apparatus as ~~elaimed in claim 10~~ defined in Claim 10, in
2 which the variable deviation element comprises a moveable diffractive element.

1 14. (Currently Amended) An apparatus as ~~elaimed in claim 10~~ defined in Claim 10, in
2 which the variable deviation element has a number of reflective surfaces being an integer
3 number of the number of laser sources being multiplexed.

1 15. (Currently Amended) An apparatus as ~~elaimed in any of claims 9 to 14~~ defined in
2 Claim 9, further comprising a laser multiplexing element as ~~elaimed~~ defined in ~~any of~~
3 ~~claims 1 to 3~~. Claim 1.

1 16. (Currently Amended) A high power laser produced plasma generation apparatus
2 ~~comprising~~ comprising:

3 a laser as ~~elaimed~~ defined in any of claims 1 to 3 and/or Claim 1; and
4 an apparatus as ~~elaimed~~ defined in any of claims 9 to 14. Claim 9.

1 17. (Currently Amended) A laser plasma production apparatus ~~comprising~~
2 comprising:

3 a laser as ~~elaimed~~ defined in any of claims 1 to 3 or Claim 1; and
4 a laser apparatus as ~~elaimed~~ defined in any of claims 9 to 14. Claim 9.

1 18. (Currently Amended) A method of multiplexing laser beams comprising the steps
2 ~~of~~ of:

3 directing pulsed laser light from two or more independent lasers onto a movable
4 deviation ~~element~~ element; and

5 moving said deviation element at a rate such that deviation of a laser pulse
6 between lead and trailing edge edges is ~~minimised~~. minimized.

1 19. (Original) A laser multiplexing assembly comprising a beam shaping element in
2 which the beam shaping element is arranged to direct a first laser beam along an axis
3 common with a second laser beam axis onto a common focusing element arranged about
4 said common axis.

1 20. (Currently Amended) An assembly as ~~elaimed in claim 19~~ defined in Claim 19, in
2 which the beam shaping element is arranged to spatially separate the first and second
3 beams.

1 21. (Currently Amended) An assembly as ~~elaimed in claim 19 or 20~~ defined in Claim
2 19, in which the beam shaping element is formed of a lens.

1 22. (Currently Amended) An assembly as ~~elaimed in claim 21~~ defined in Claim 21, in
2 which the lens is an axicon lens.

1 23. (Original) A method of multiplexing laser beams comprising the steps of directing
2 a first laser beam along an axis common with a second laser beam axis onto a common
3 focusing element arranged about said common axis.

1 24. (New) A laser multiplexing apparatus comprising:
2 a plurality of laser sources each of which generates a laser beam along an axis that
3 is laterally and/or angularly spaced apart from the axes of all other laser beams; and
4 a temporal multiplexing element that is configured and arranged to temporally
5 interleave the laser beams from the plurality of sources such that the plurality of laser
6 beams all propagate close together.

1 25. (New) A laser multiplexing apparatus as defined in Claim 24, wherein the
2 temporal multiplexing element comprises:
3 an array of respective closely spaced, small lenses forming a "fly-eye"
4 arrangement.

1 26. (New) A laser multiplexing apparatus as defined in Claim 24, wherein the
2 temporal multiplexing element comprises:
3 a rotating mirror or prism which introduces a time-varying angular deviation to the
4 laser beams.

1 27. (New) A laser multiplexing apparatus as defined in Claim 24, wherein the
2 temporal multiplexing element comprises:
3 a wedge-shaped prism that is rotated such that an output face of the wedge-shaped
4 prism presents the same angle of incidence to the laser beams in turn as they are
5 sequentially pulsed.

1 28. (New) A laser multiplexing apparatus as defined in Claim 24, wherein the
2 temporal multiplexing element comprises:
3 a plurality of beam shaping elements that have the plurality of laser beams
4 respectively focused thereupon to produce respective coaxial circular output beams; and

- 5 a common focusing element that produces a substantially collimated annular
- 6 output beam from the circular annular output beams.